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FIG. 1

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FIG. 2

'Serial No.: 10/003,004   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.3D
Title: PROCESS TO BUILD AND USE USAGE BASED LICENSING SERVER DATA STRUCTURE FOR
             USAGE BASED LICENSING

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CLIENT 1
PROG - INST "R1"

100

106
- START _ TIME
- DOC _ OPEN
- DOC _ CLOSED : 10 PAGES
- STOP _ TIME

108
- START _ TIME
- DOC _ OPEN
- DOC _ CLOSED : 30 PAGES
- DWGS MADE = 3
- STOP _ TIME

DISTILLATION   104

102

| M1 | M2 | M3 |

CPU
TIME   # DWGS   # PAGES

CLIENT 2
PROG - INST "R2"

110 · · ·
     · · ·
     · · ·
     · · ·

112 · · ·
     · · ·
     · · ·

114 · · ·
     · · ·
     · · ·

DISTILLATION

116

| M4 | M5 |

QUERIES   STOCK
SERVICED   QUOTES
                 TRANSMITTED

FIG. 3

Serial No.: 10/003,004   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.3D
Title: PROCESS TO BUILD AND USE USAGE BASED LICENSING SERVER DATA STRUCTURE FOR
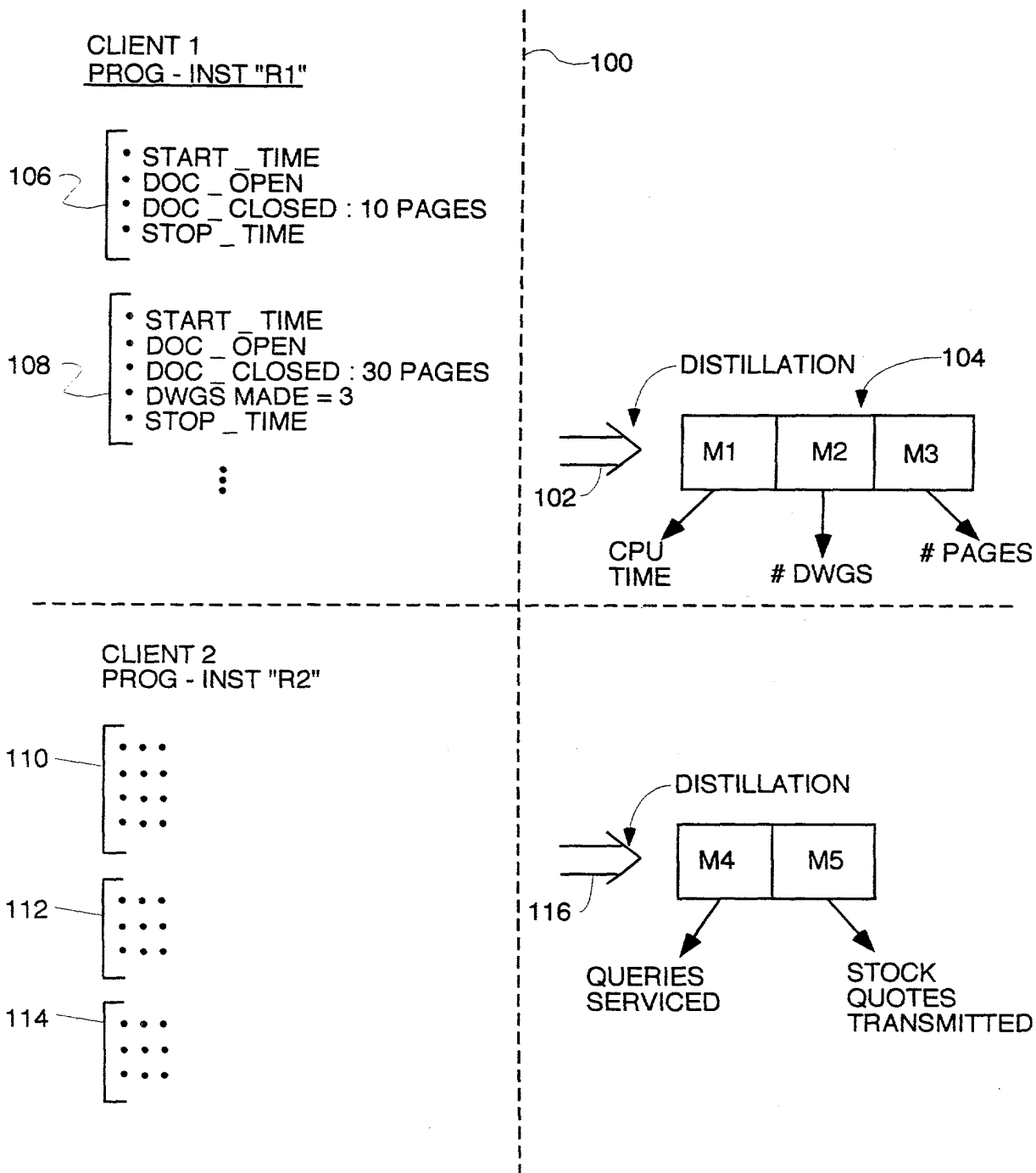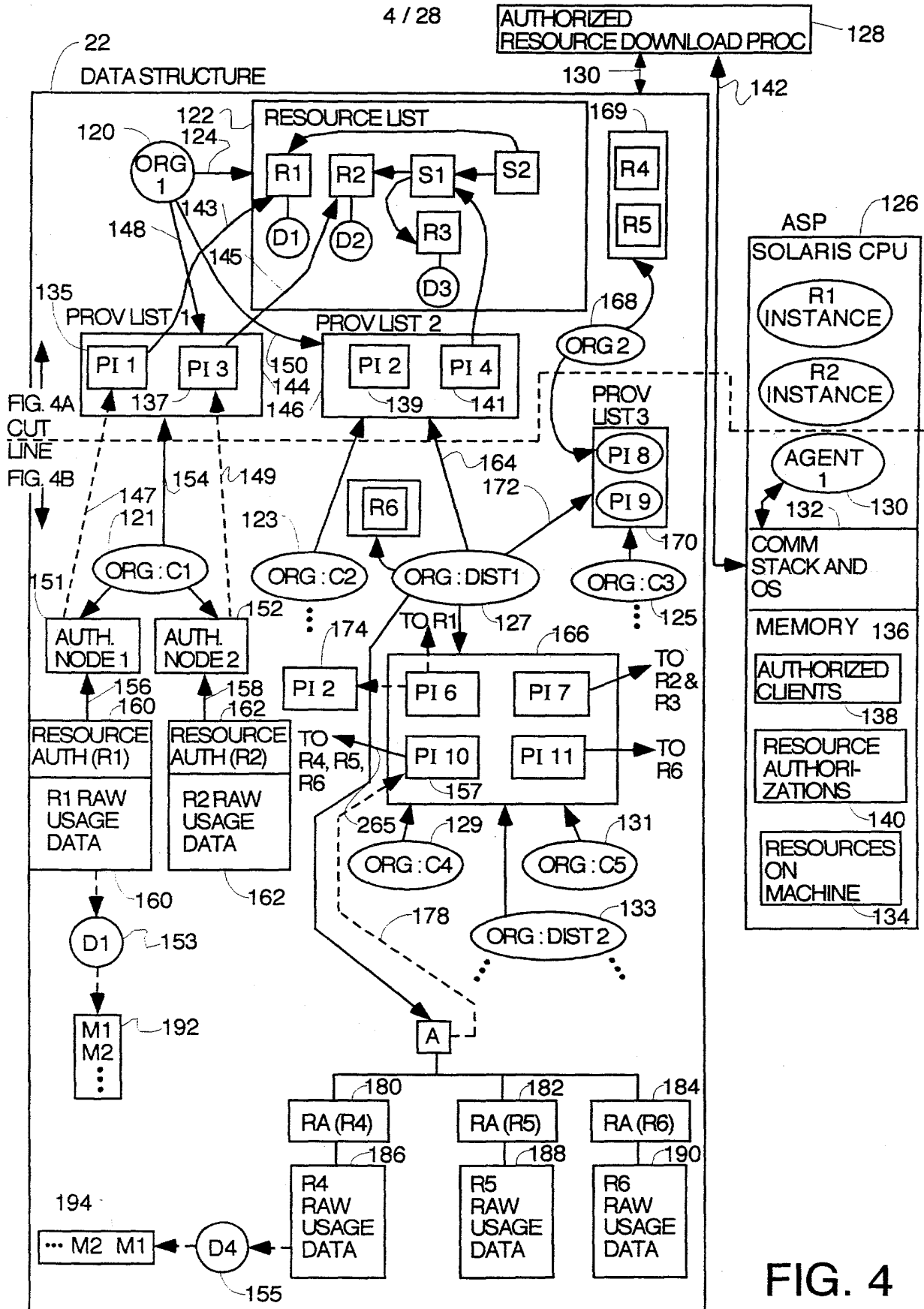   USAGE BASED LICENSING

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FIG. 4

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FIG. 5

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OVERALL PROCESS TO DISTILL RAW USAGE DATA TO METRIC DATA
BY A PROGRAMMABLE MAPPING

229

START

231

IS EXECUTION OF
DISTILLATION PROGRAM
REQUESTED?

NO

YES

233

DETERMINE HOW FAR BACK IN THE
USAGE DATA FILE TO GO SO AS TO
PROCESS ONLY NEW USAGE DATA INTO
NEW METRICS OR TO MODIFY METRICS
ALREADY CALCULATED

241

TOTAL USAGE DATA OF EACH
SPECIFIC TYPE OR MAKE SUBTOTAL
OF USAGE DATA OF EACH SPECIFIC
TYPE FOR THE RELEVANT
REPORTING PERIOD

243

FOLLOW POINTER IN
PROVISIONING ITEM TO
BEGINNING OF APPROPRIATE
SPREADSHEET PROGRAM
CONTAINING DISTILLATION
FORMULAS

245

PLUG USAGE DATA TOTALS OR
SUBTOTALS INTO
APPROPRIATE VARIABLES OF
SPREADSHEET AND
CALCULATE FORMULAS AND
STORE METRICS IN
PREDEFINED MEMORY
LOCATIONS (TYPICALLY
PREDEFINED CELLS OF
SPREADSHEET)

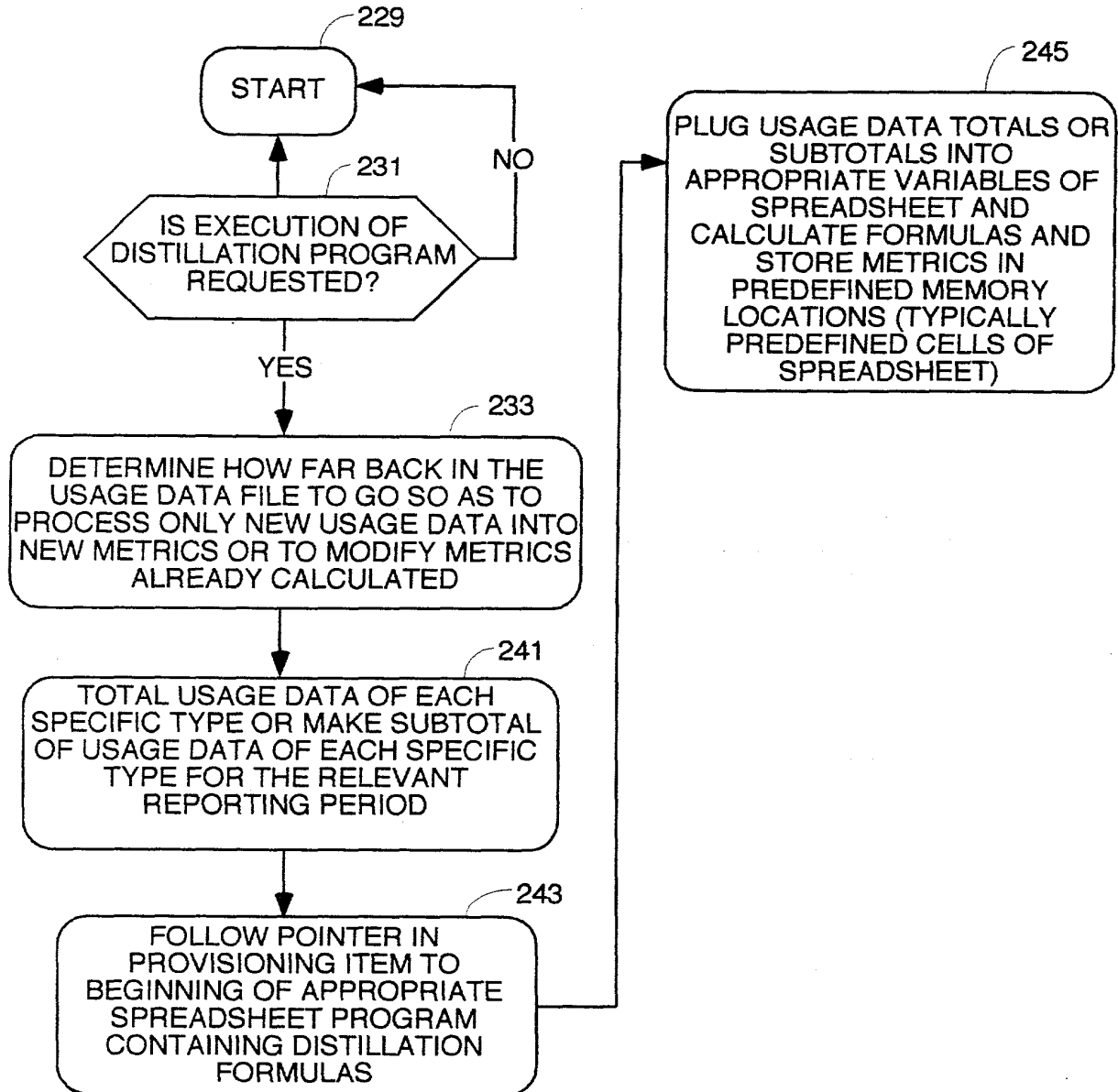FIG. 6A

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OVERALL PROCESS TO DISTILL RAW USAGE DATA TO METRIC DATA
BY A PROGRAMMABLE MAPPING USING A PROGRAMMABLE DISTILLATION PGM

229

START

231

IS EXECUTION OF
DISTILLATION PROGRAM
REQUESTED?

NO

YES

233

DETERMINE HOW FAR BACK IN THE
USAGE DATA FILE TO GO SO AS TO
PROCESS ONLY NEW USAGE DATA INTO
NEW METRICS OR TO MODIFY METRICS
ALREADY CALCULATED

249

FOLLOW POINTER TO
BEGINNING OF
APPROPRIATE
DISTILLATION PROGRAM
CONTAINING
APPROPRIATE
DISTILLATION FORMULAS
FOR THIS
RESOURCE
USAGE DATA

235

TOTAL USAGE DATA OF EACH
SPECIFIC TYPE OR MAKE SUBTOTAL
OF USAGE DATA OF EACH SPECIFIC
TYPE FOR THE RELEVANT
REPORTING PERIOD

247

IS THERE CONFIG
DATA CONTROLLING
WHICH DISTILLATION
PROGRAM TO USE?

NO

YES

238

PLUG USAGE DATA
TOTALS OR SUBTOTALS
INTO APPROPRIATE
VARIABLES OF
SPREADSHEET
AND CALCULATE
FORMULAS AND
STORE METRICS IN
PREDEFINED MEMORY
LOCATIONS (TYPICALLY
PREDEFINED CELLS OF
SPREADSHEET)

251

DETERMINE WHICH
DISTILLATION PROGRAM TO
USE FROM CONFIGURATION
DATA AND READ POINTER

FIG. 6B

Serial No.:   10/003,004   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.3D
Title: PROCESS TO BUILD AND USE USAGE BASED LICENSING SERVER DATA STRUCTURE FOR
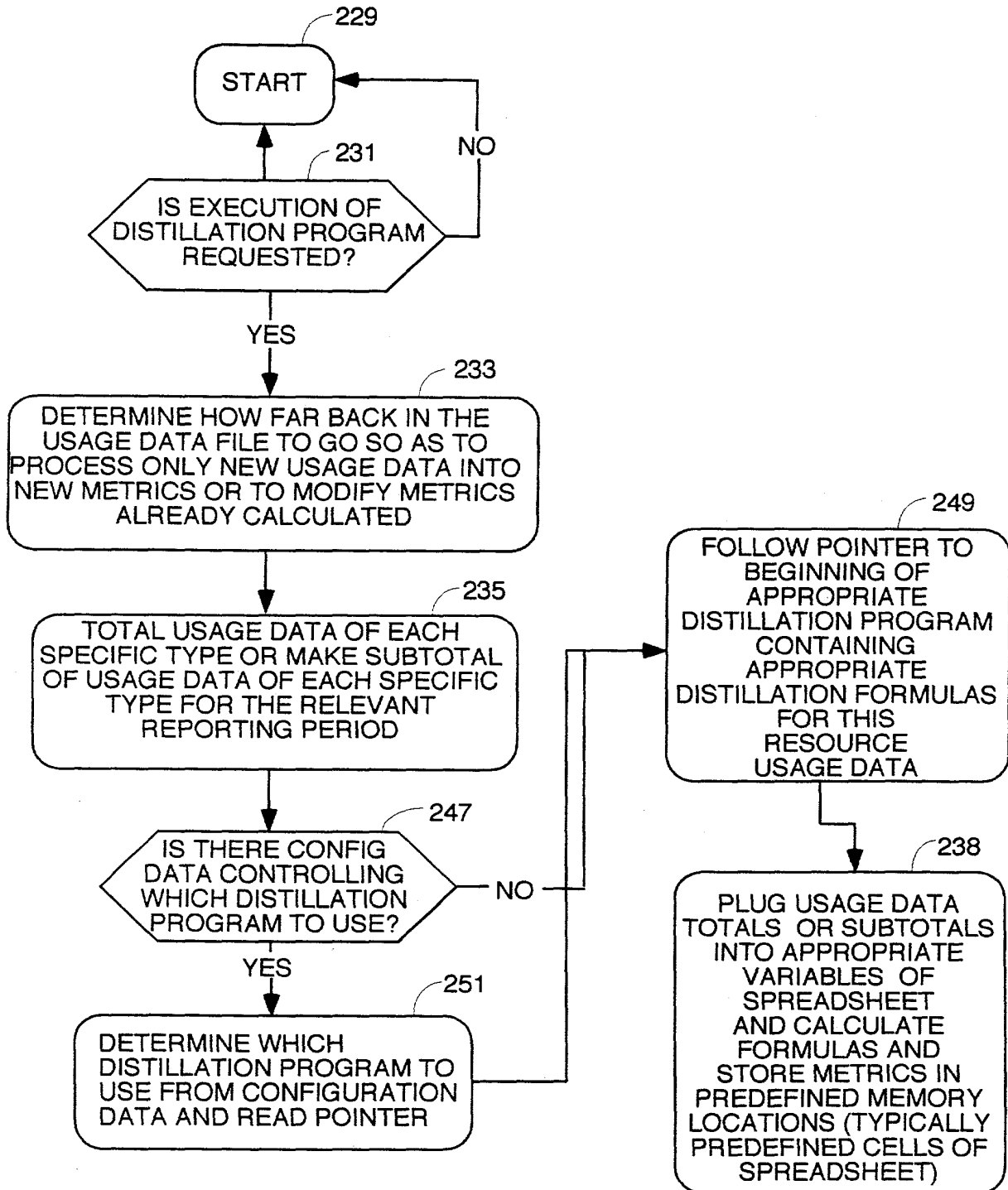   USAGE BASED LICENSING

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PROCESS TO PROGRAMMABLY DISTILL RAW USAGE DATA TO METRICS AND PROGRAMMABLY DISTILL THE METRICS INTO CENTRAL SERVICE UNITS OF THE CUSTOMER'S DESIGN

253

PERFORM PROCESS OF FIGURE 6A OR FIGURE 6B OR ANY OTHER SUITABLE PROCESS TO CONVERT RAW USAGE DATA INTO METRIC DATA FOR NEXT USAGE DATA BUFFER

255

DOES DISTILLATION PROGRAM FOR THE USAGE DATA BUFFER JUST PROCESSED CONTAIN A POINTER TO CSU DISTILLATION PROGRAM?

NO

400

LEAVE METRICS AS THEY ARE

402

DONE-WAIT FOR NEXT LAUNCH OF DISTILLATION PROGRAM

YES

257

FOLLOW POINTERS TO CSU DISTILLATION PROGRAM AND NECESSARY DATA AND PLUG APPROPRIATE METRICS AND PROVISIONING ITEM LICENSE TERMS INTO VARIABLES OF CSU DISTILLATION FORMULAS. THEN DO A DATA INTEGRITY CHECK TO MAKE SURE ALL NECESSARY METRIC DATA IS AVAILABLE

259

IS ALL NECESSARY METRIC DATA AVAILABLE?

NO

261

EVALUATE CSU DISTILLATION PROGRAM FORMULAS WITH NEW METRIC VARIABLE VALUES AND OUTPUT CSU REPORT

FIG. 7

Serial No.: 10/003,004   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.3D
Title: PROCESS TO BUILD AND USE USAGE BASED LICENSING SERVER DATA STRUCTURE FOR
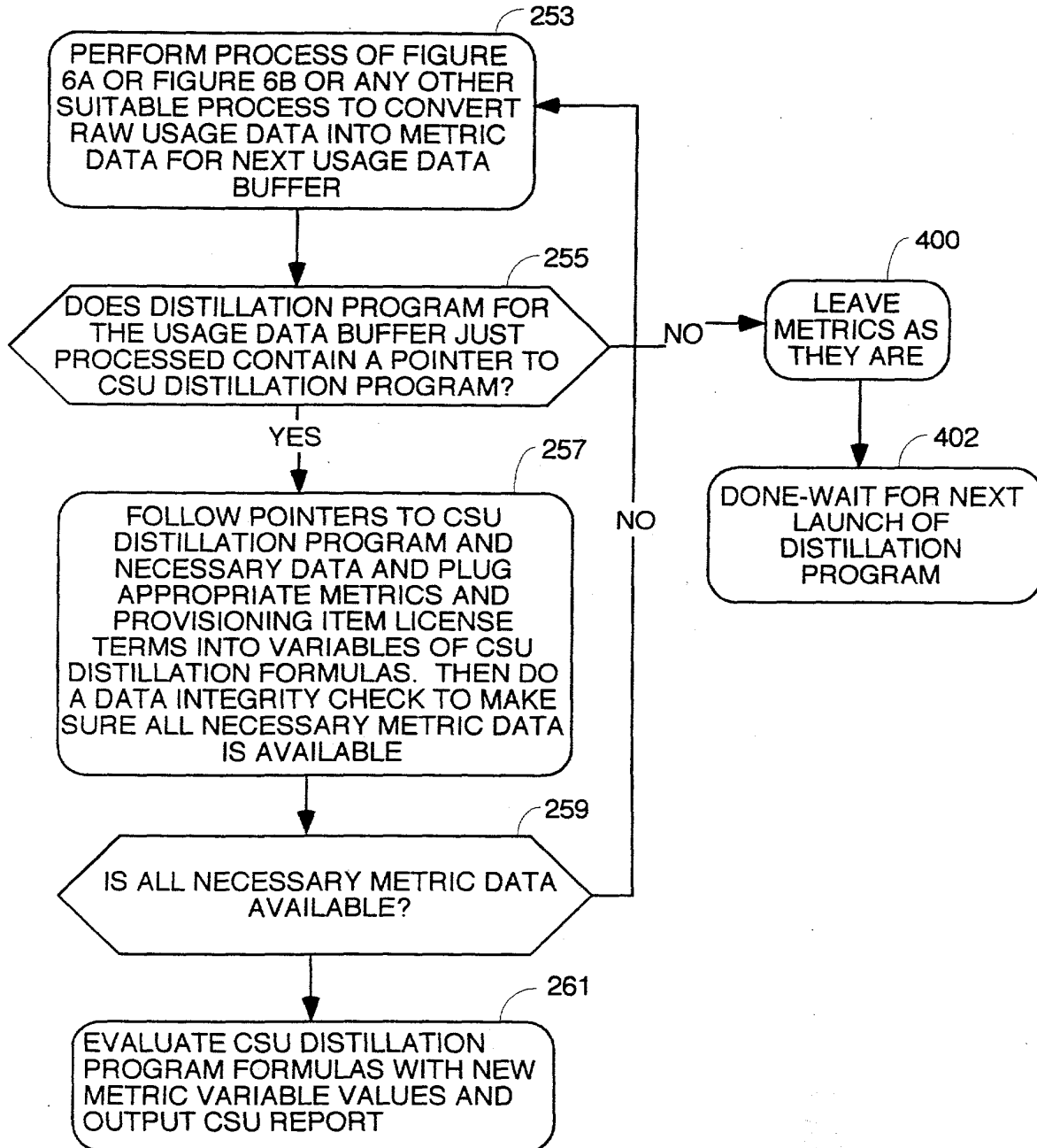   USAGE BASED LICENSING

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OVERALL PROCESS TO COLLECT RAW USAGE DATA IN A CENTRAL SERVER AND USE IT TO PREPARE METRICS AND PREPARE INVOICES OR REPORTS THEREFROM
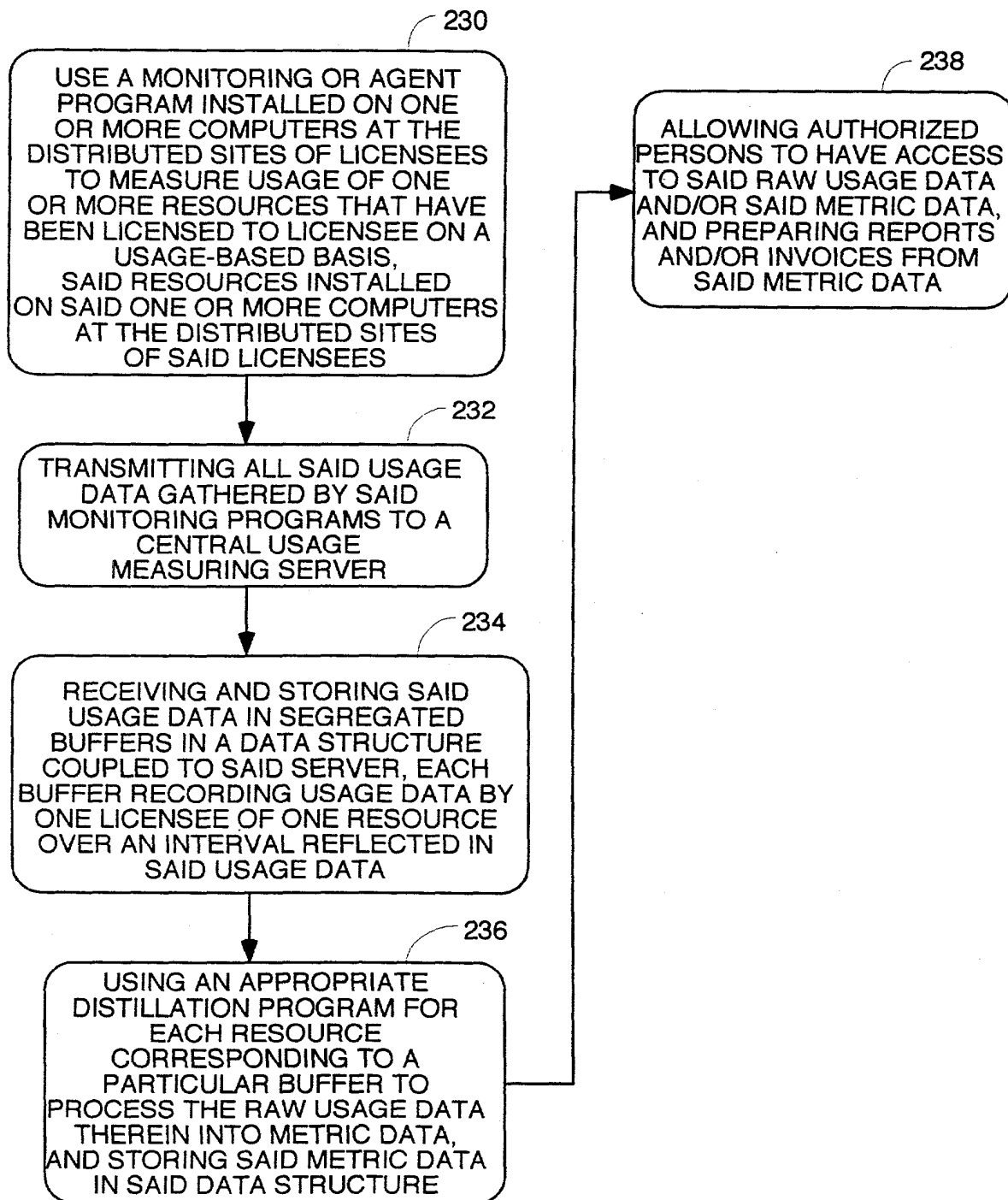
230

USE A MONITORING OR AGENT PROGRAM INSTALLED ON ONE OR MORE COMPUTERS AT THE DISTRIBUTED SITES OF LICENSEES TO MEASURE USAGE OF ONE OR MORE RESOURCES THAT HAVE BEEN LICENSED TO LICENSEE ON A USAGE-BASED BASIS, SAID RESOURCES INSTALLED ON SAID ONE OR MORE COMPUTERS AT THE DISTRIBUTED SITES OF SAID LICENSEES

238

ALLOWING AUTHORIZED PERSONS TO HAVE ACCESS TO SAID RAW USAGE DATA AND/OR SAID METRIC DATA, AND PREPARING REPORTS AND/OR INVOICES FROM SAID METRIC DATA

232

TRANSMITTING ALL SAID USAGE DATA GATHERED BY SAID MONITORING PROGRAMS TO A CENTRAL USAGE MEASURING SERVER

234

RECEIVING AND STORING SAID USAGE DATA IN SEGREGATED BUFFERS IN A DATA STRUCTURE COUPLED TO SAID SERVER, EACH BUFFER RECORDING USAGE DATA BY ONE LICENSEE OF ONE RESOURCE OVER AN INTERVAL REFLECTED IN SAID USAGE DATA

236

USING AN APPROPRIATE DISTILLATION PROGRAM FOR EACH RESOURCE CORRESPONDING TO A PARTICULAR BUFFER TO PROCESS THE RAW USAGE DATA THEREIN INTO METRIC DATA, AND STORING SAID METRIC DATA IN SAID DATA STRUCTURE

FIG. 8

PROCESS TO BUILD USAGE MEASURING SERVER DATA STRUCTURE AND ALLOW RESTRICTED ACCESS THERETO

264

RECEIVING LOG-IN COMMUNICATIONS FROM A REMOTE USER CONTAINING A USER NAME AND PASSWORD

266

USING THE USER NAME AND PASSWORD TO AUTHENTICATE THE USER'S IDENTITY

270

SEND ACCESS DENIED MESSAGE ◄— NO —

268

IS THE USER AUTHENTIC?

YES

272

SEND INQUIRY TO USER REQUESTING HIM TO IDENTIFY WHICH CLIENT(S) AND/OR WHICH RESOURCE(S) IS/ARE OF INTEREST TO VIEW/DOWNLOAD/MODIFY AND, IF METRIC, USAGE OR CSU DATA IS OF INTEREST, WHICH OF THE METRIC, RAW USAGE AND/OR CSU DATA THE USER WANTS TO VIEW AND/OR DOWNLOAD

274

USER IDENTIFIES CLIENT(S) AND RESOURCE(S) OF INTEREST TO VIEW/DOWNLOAD/MODIFY AND, IF APPROPRIATE, WHICH METRIC AND/OR USAGE DATA AND/OR CSU DATA SHE WANTS TO VIEW OR DOWNLOAD

276

USAGE MEASURING SERVER CONSULTS CONFIGURATION DATA TO DETERMINE IF THE USER HAS ACCESS TO THE DATA FOR THE CLIENT AND RESOURCE IDENTIFIED BY THE USER, AND, IF ACCESS TO METRIC, RAW USAGE AND/OR CSU DATA HAS BEEN REQUESTED, WHETHER ACCESS IS AUTHORIZED

TO FIG. 9B

FIG. 9A

Serial No.: 10/003,004   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.3D
Title: PROCESS TO BUILD AND USE USAGE BASED LICENSING SERVER DATA STRUCTURE FOR
           USAGE BASED LICENSING

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FROM FIG. 9A

280

SEND ACCESS
DENIED MESSAGE
←— NO —

278

DOES THIS USER HAVE ACCESS TO
DATA FOR THE CLIENT(S) AND
RESOURCE(S) IDENTIFIED BY THE
USER?

YES

282

SEND REQUESTED DATA TO USER
FOR VIEWING OR DOWNLOAD

284

SENDING A MESSAGE INQUIRING
WHETHER THE USER HAS ANY NEW
RESOURCES OR CLIENTS OR
PROVISIONING ITEMS OR PROVISIONING
LISTS TO DECLARE

288

DONE
←— NO —

286

NEW RESOURCES OR CLIENTS,
ETC. TO DECLARE?

YES

290

REQUEST TRANSMISSION OF IDENTITY OF
RESOURCE(S) AND OTHER ATTRIBUTES
THEREOF AND/OR IDENTITY OF NEW
CLIENT(S) AND ATTRIBUTES THEREOF AND
RECEIVED TRANSMITTED DATA IN
RESPONSE

292

CREATE NEW DATA ENTRIES IN DATA
STRUCTURE MEMORIALIZING NEW
RESOURCE(S) AND/OR NEW CLIENTS
AND THEIR ATTRIBUTES AND
RELATIONSHIPS TO OTHER DATA
ENTRIES IN DATA STRUCTURE

FIG. 9B

Serial No.: 10/003,004   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.3D
Title: PROCESS TO BUILD AND USE USAGE BASED LICENSING SERVER DATA STRUCTURE FOR
              USAGE BASED LICENSING
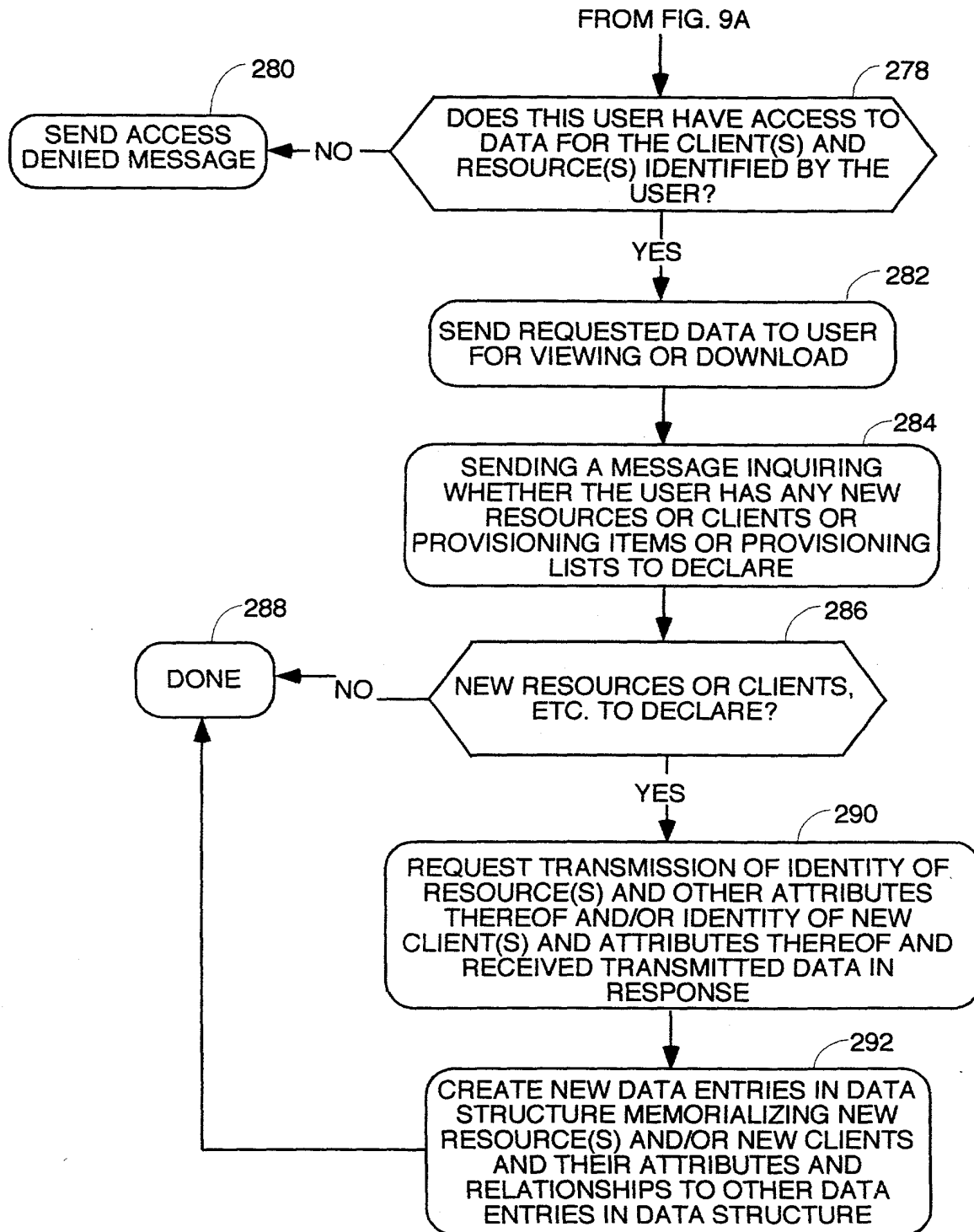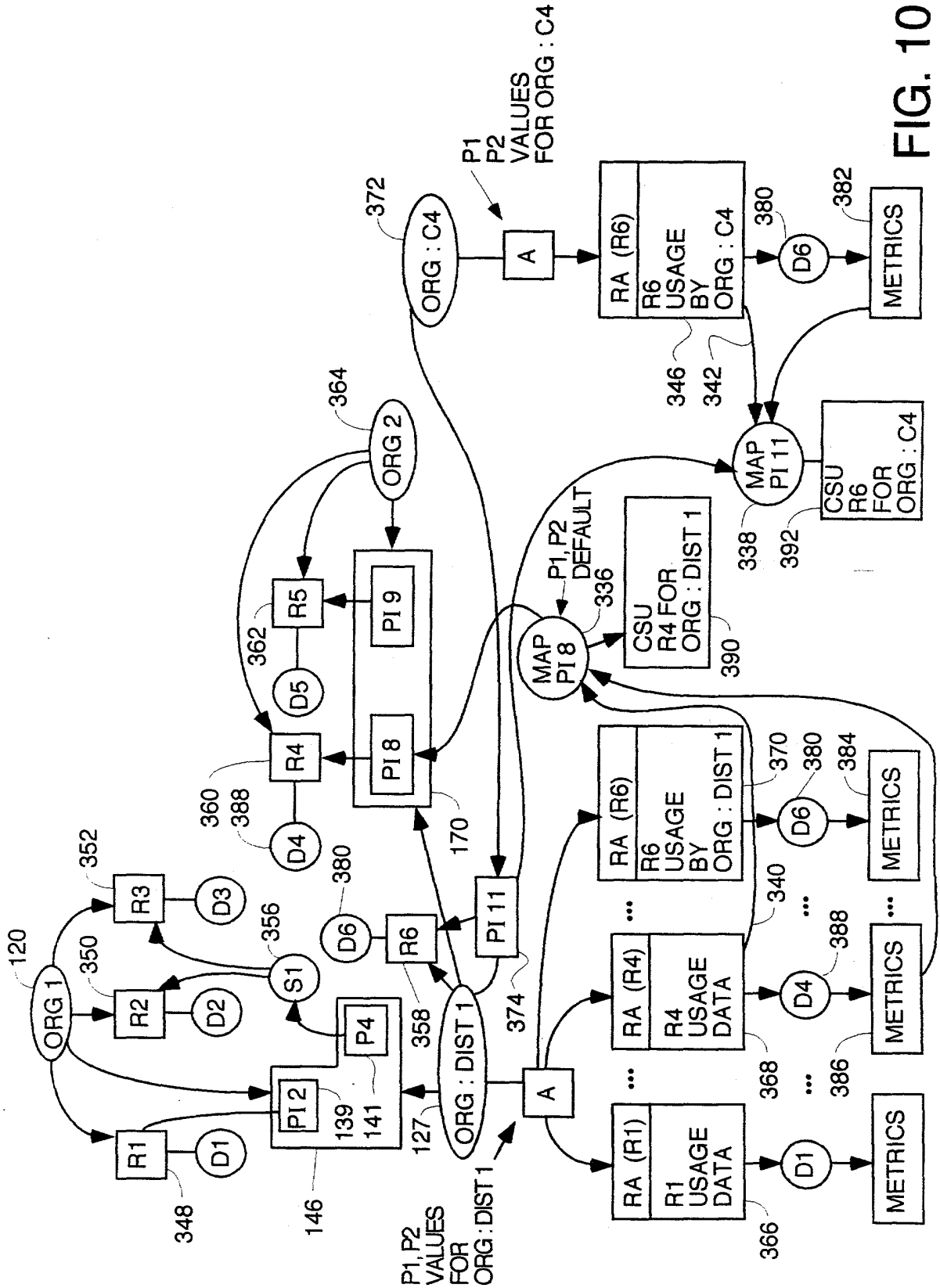
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FIG. 10

ALTERNATIVE PROCESS TO PROGRAMMABLY DISTILL RAW USAGE DATA TO
METRICS AND PROGRAMMABLY DISTILL THE METRICS INTO CENTRAL
SERVICE UNITS USING A CSU DISTILLATION PROGRAM LINKED TO
PROVISIONING ITEM DETAILING LICENSE TERMS

253

PERFORM PROCESS OF FIGURE
6A OR FIGURE 6B OR ANY OTHER
SUITABLE PROCESS TO CONVERT
RAW USAGE DATA INTO METRIC
DATA FOR NEXT USAGE DATA
BUFFER

404

DOES THE PROVISIONING ITEM LINKED TO
THE USAGE DATA BUFFER JUST PROCESSED
CONTAIN A POINTER TO CSU DISTILLATION
PROGRAM?

— NO →

400

LEAVE
METRICS AS
THEY ARE

402

DONE - WAIT
FOR NEXT
LAUNCH OF
DISTILLATION
PROGRAM

YES

257

FOLLOW POINTERS TO CSU
DISTILLATION PROGRAM AND
NECESSARY DATA AND PLUG
APPROPRIATE METRICS AND
PROVISIONING ITEM LICENSE
TERMS INTO VARIABLES OF CSU
DISTILLATION FORMULAS. THEN DO
A DATA INTEGRITY CHECK TO MAKE
SURE ALL NECESSARY METRIC DATA
IS AVAILABLE

NO

259

IS ALL NECESSARY METRIC DATA
AVAILABLE?

261

EVALUATE CSU DISTILLATION
PROGRAM FORMULAS WITH NEW
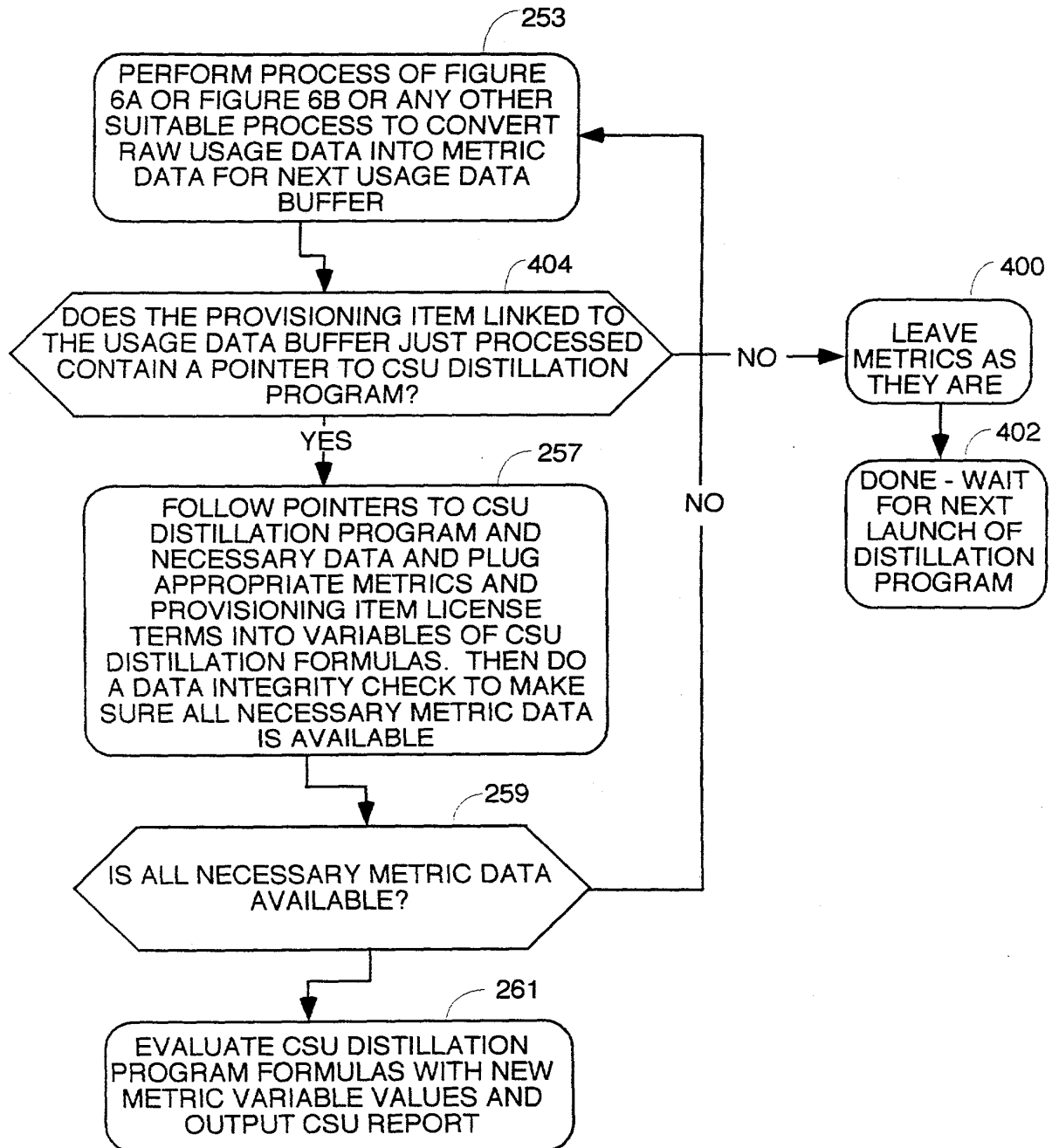METRIC VARIABLE VALUES AND
OUTPUT CSU REPORT

FIG. 11

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ALTERNATIVE PROCESS TO PROGRAMMABLY DISTILL RAW USAGE DATA TO
METRICS AND PROGRAMMABLY DISTILL THE METRICS INTO CENTRAL
SERVICE UNITS USING A CSU DISTILLATION PROGRAM LINKED TO THE
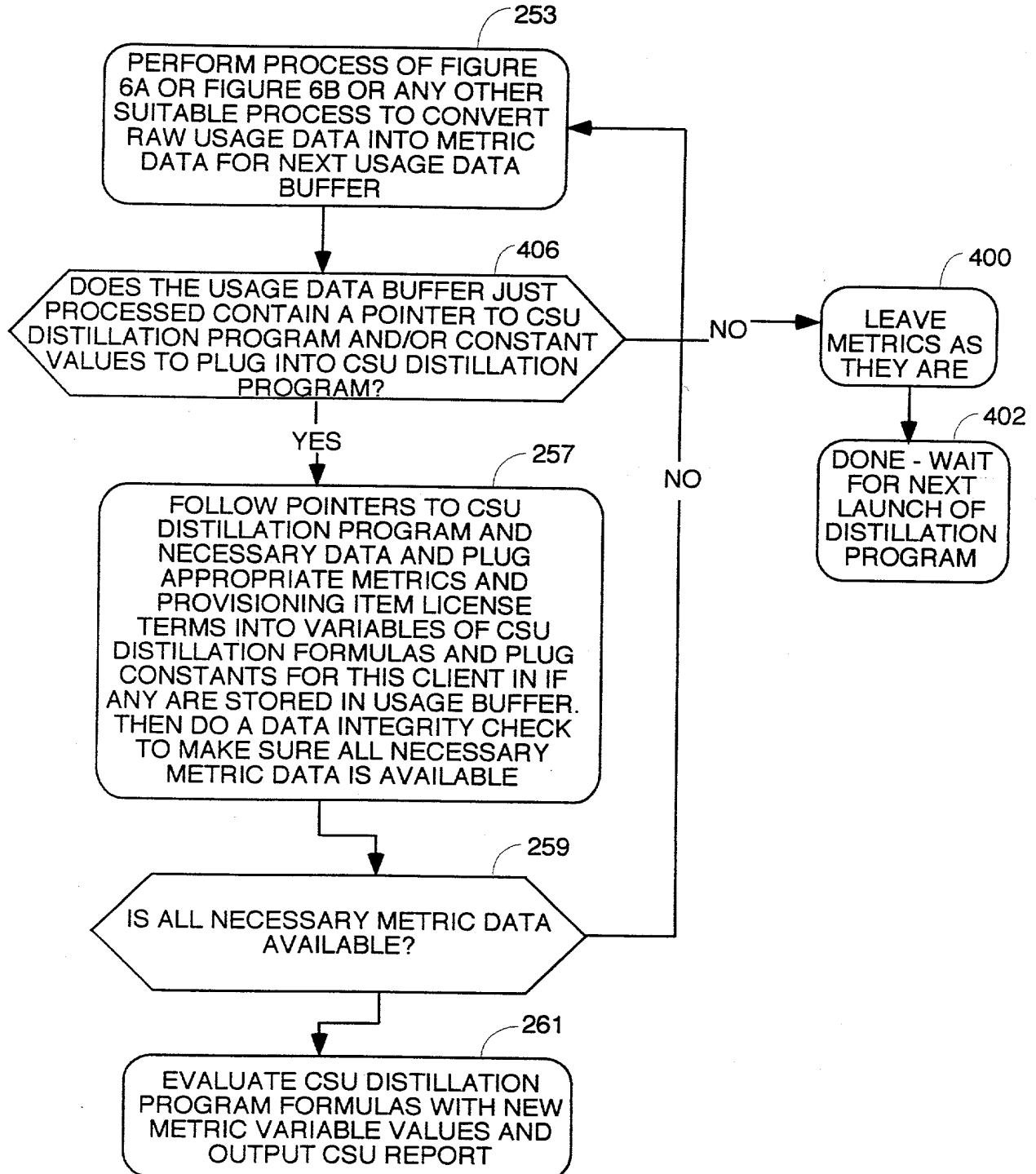USAGE DATA BUFFER OF EACH CLIENT THAT WANTS CSU BASED REPORTS

253

PERFORM PROCESS OF FIGURE
6A OR FIGURE 6B OR ANY OTHER
SUITABLE PROCESS TO CONVERT
RAW USAGE DATA INTO METRIC
DATA FOR NEXT USAGE DATA
BUFFER

406

DOES THE USAGE DATA BUFFER JUST
PROCESSED CONTAIN A POINTER TO CSU
DISTILLATION PROGRAM AND/OR CONSTANT
VALUES TO PLUG INTO CSU DISTILLATION
PROGRAM?

NO

400

LEAVE
METRICS AS
THEY ARE

402

DONE - WAIT
FOR NEXT
LAUNCH OF
DISTILLATION
PROGRAM

YES

257

FOLLOW POINTERS TO CSU
DISTILLATION PROGRAM AND
NECESSARY DATA AND PLUG
APPROPRIATE METRICS AND
PROVISIONING ITEM LICENSE
TERMS INTO VARIABLES OF CSU
DISTILLATION FORMULAS AND PLUG
CONSTANTS FOR THIS CLIENT IN IF
ANY ARE STORED IN USAGE BUFFER.
THEN DO A DATA INTEGRITY CHECK
TO MAKE SURE ALL NECESSARY
METRIC DATA IS AVAILABLE

259

IS ALL NECESSARY METRIC DATA
AVAILABLE?

NO

261

EVALUATE CSU DISTILLATION
PROGRAM FORMULAS WITH NEW
METRIC VARIABLE VALUES AND
OUTPUT CSU REPORT

FIG. 12

PROCESS TO CREATE DATA STRUCTURE TO SUPPORT SUITE LICENSING AND TO USE THE DATA STRUCTURE TO IMPLEMENT SUITE LICENSING
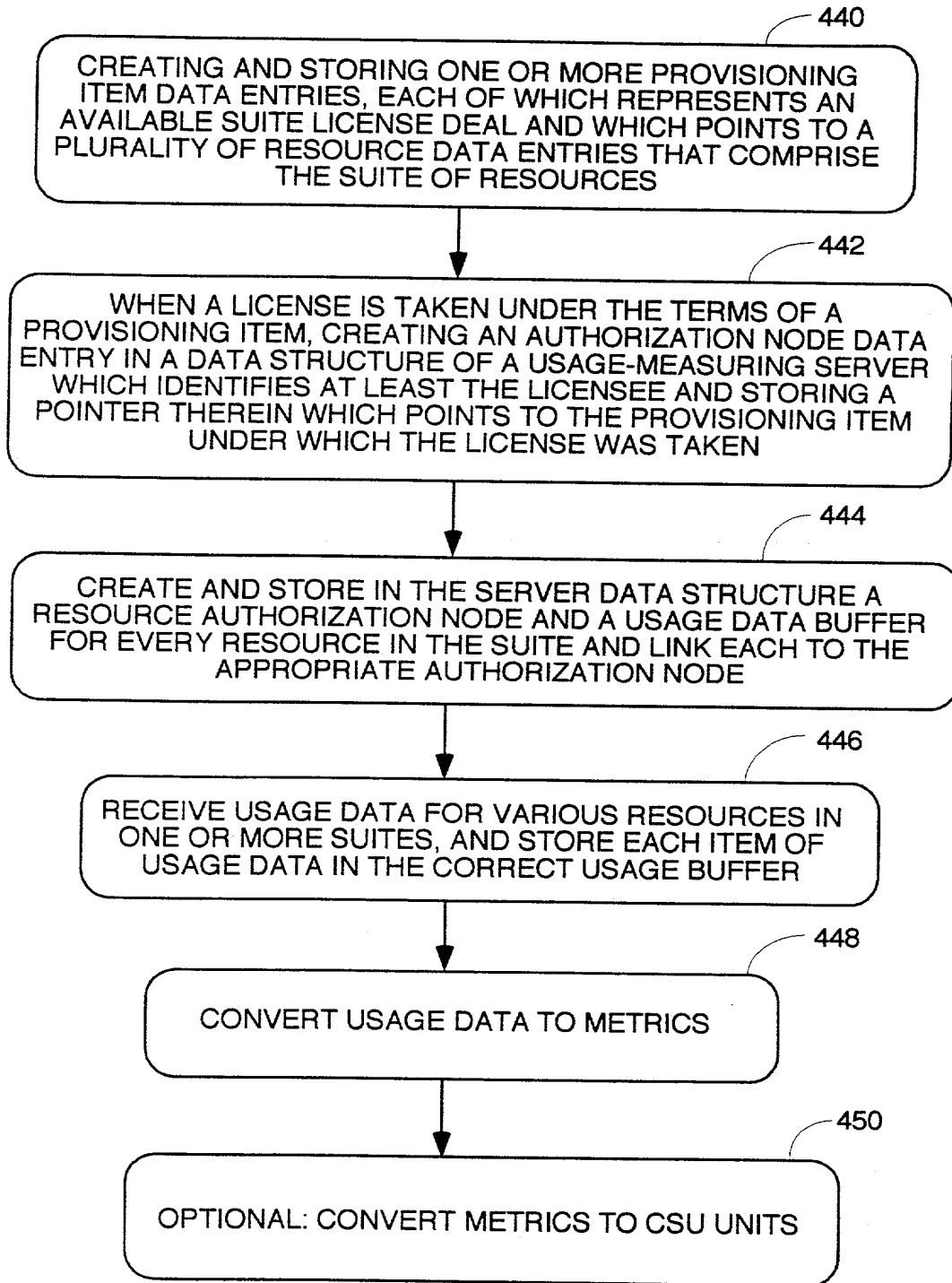
440

CREATING AND STORING ONE OR MORE PROVISIONING ITEM DATA ENTRIES, EACH OF WHICH REPRESENTS AN AVAILABLE SUITE LICENSE DEAL AND WHICH POINTS TO A PLURALITY OF RESOURCE DATA ENTRIES THAT COMPRISE THE SUITE OF RESOURCES

442

WHEN A LICENSE IS TAKEN UNDER THE TERMS OF A PROVISIONING ITEM, CREATING AN AUTHORIZATION NODE DATA ENTRY IN A DATA STRUCTURE OF A USAGE-MEASURING SERVER WHICH IDENTIFIES AT LEAST THE LICENSEE AND STORING A POINTER THEREIN WHICH POINTS TO THE PROVISIONING ITEM UNDER WHICH THE LICENSE WAS TAKEN

444

CREATE AND STORE IN THE SERVER DATA STRUCTURE A RESOURCE AUTHORIZATION NODE AND A USAGE DATA BUFFER FOR EVERY RESOURCE IN THE SUITE AND LINK EACH TO THE APPROPRIATE AUTHORIZATION NODE

446

RECEIVE USAGE DATA FOR VARIOUS RESOURCES IN ONE OR MORE SUITES, AND STORE EACH ITEM OF USAGE DATA IN THE CORRECT USAGE BUFFER

448

CONVERT USAGE DATA TO METRICS

450

OPTIONAL: CONVERT METRICS TO CSU UNITS

FIG. 13

Serial No.: 10/003,004   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.3D
Title: PROCESS TO BUILD AND USE USAGE BASED LICENSING SERVER DATA STRUCTURE FOR
            USAGE BASED LICENSING

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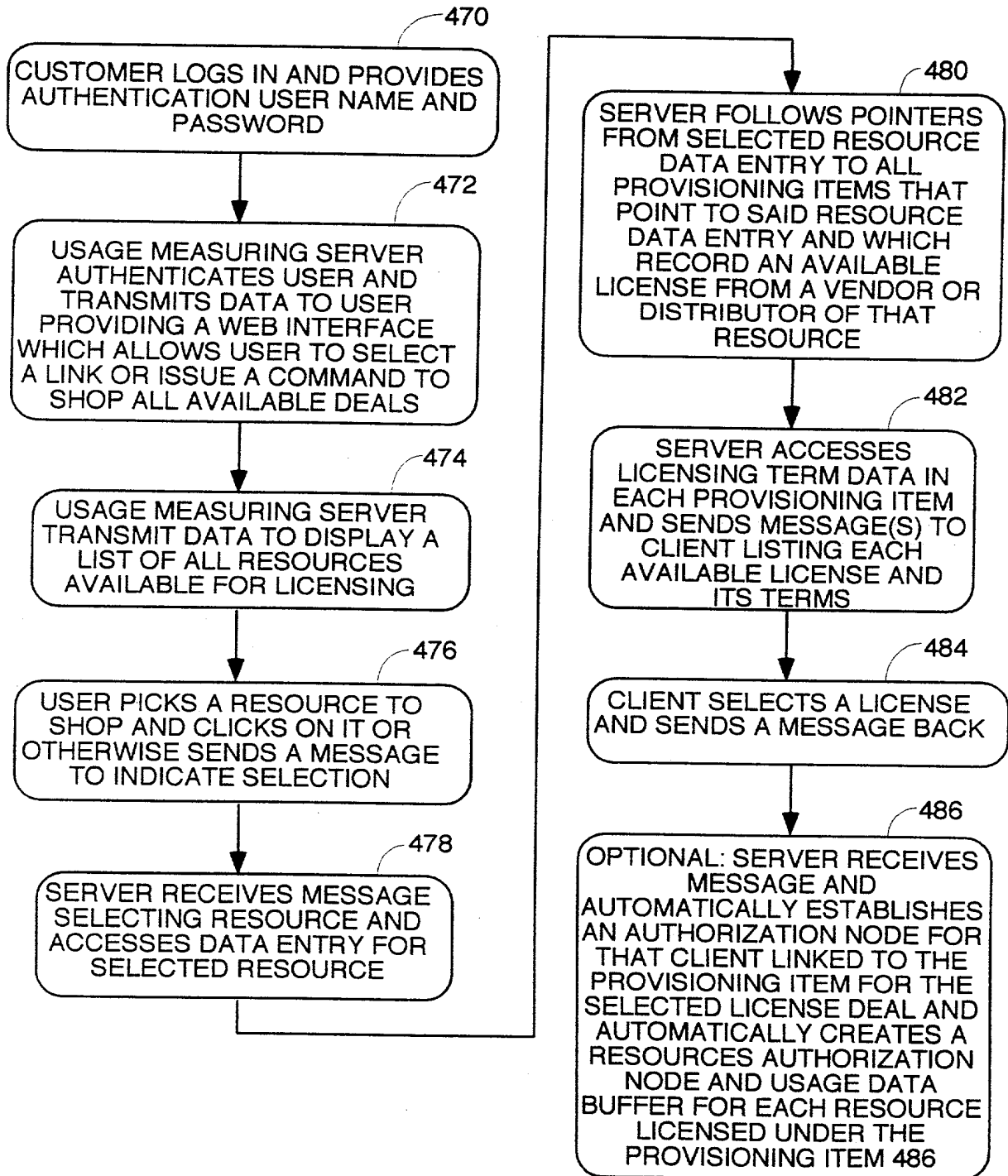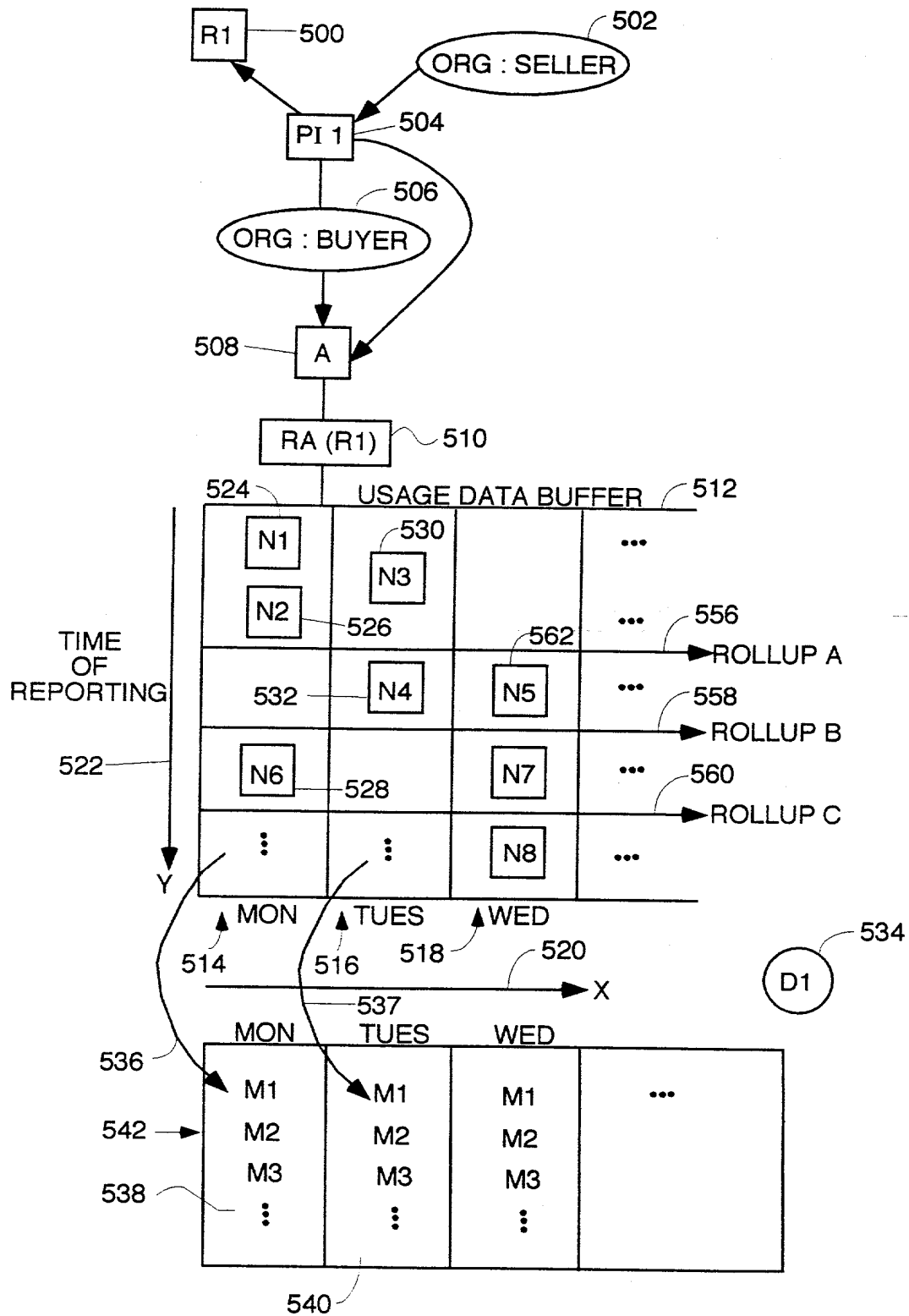ONE STOP SHOPPING PROCESS TO DETERMINE ALL AVAILABLE LICENSE DEALS ON A PARTICULAR RESOURCE

470

CUSTOMER LOGS IN AND PROVIDES AUTHENTICATION USER NAME AND PASSWORD

472

USAGE MEASURING SERVER AUTHENTICATES USER AND TRANSMITS DATA TO USER PROVIDING A WEB INTERFACE WHICH ALLOWS USER TO SELECT A LINK OR ISSUE A COMMAND TO SHOP ALL AVAILABLE DEALS

474

USAGE MEASURING SERVER TRANSMIT DATA TO DISPLAY A LIST OF ALL RESOURCES AVAILABLE FOR LICENSING

476

USER PICKS A RESOURCE TO SHOP AND CLICKS ON IT OR OTHERWISE SENDS A MESSAGE TO INDICATE SELECTION

478

SERVER RECEIVES MESSAGE SELECTING RESOURCE AND ACCESSES DATA ENTRY FOR SELECTED RESOURCE

480

SERVER FOLLOWS POINTERS FROM SELECTED RESOURCE DATA ENTRY TO ALL PROVISIONING ITEMS THAT POINT TO SAID RESOURCE DATA ENTRY AND WHICH RECORD AN AVAILABLE LICENSE FROM A VENDOR OR DISTRIBUTOR OF THAT RESOURCE

482

SERVER ACCESSES LICENSING TERM DATA IN EACH PROVISIONING ITEM AND SENDS MESSAGE(S) TO CLIENT LISTING EACH AVAILABLE LICENSE AND ITS TERMS

484

CLIENT SELECTS A LICENSE AND SENDS A MESSAGE BACK

486

OPTIONAL: SERVER RECEIVES MESSAGE AND AUTOMATICALLY ESTABLISHES AN AUTHORIZATION NODE FOR THAT CLIENT LINKED TO THE PROVISIONING ITEM FOR THE SELECTED LICENSE DEAL AND AUTOMATICALLY CREATES A RESOURCES AUTHORIZATION NODE AND USAGE DATA BUFFER FOR EACH RESOURCE LICENSED UNDER THE PROVISIONING ITEM 486

FIG. 14

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FIG. 15

PROCESS TO COLLECT USAGE DATA, PARTITION IT INTO TIME SEGMENTS
AND GENERATE METRICS THEREFROM

544

USE AGENT PROGRAM TO COLLECT USAGE DATA ON EACH
RESOURCE AND TIME AND DATE OF EACH USE AND SENDING
THE USAGE DATA TO THE USAGE MEASURING SERVER
DIRECTLY OR INDIRECTLY

546

USAGE MEASURING SERVER RECEIVES USAGE DATA FOR
EACH RESOURCE BY EACH CLIENT AND STORES IT IN THE
APPROPRIATE TIME COMPARTMENT OF THE APPROPRIATE
USAGE DATA BUFFER

548

USAGE MEASURING SERVER DETERMINES IN ANY WAY
WHEN IT IS TIME TO RUN A DISTILLATION PROGRAM
FOR A PARTICULAR TIME SEGMENT SUCH AS BY
CHECKING CONFIGURATION DATA SETTING A SCHEDULE
FOR EXECUTION OF THE DISTILLATION PROGRAM

550

SERVER LAUNCHES DISTILLATION PROGRAM FOR
PARTICULAR RESOURCE FOR WHICH USAGE DATA HAS
BEEN COLLECTED AND PARTITIONED AND ASSIGNS IT TO
PROCESS THE USAGE DATA FOR A PARTICULAR TIME
SEGMENT

552

DISTILLATION PROGRAM RETRIEVES THE USAGE DATA
AND LICENSE TERMS IF NECESSARY FOR THE
PARTICULAR TIME SEGMENT FOR WHICH IT IS
EXECUTING, PLUGS THE DATA INTO THE APPROPRIATE
FORMULAS AND CONVERTS THE DATA TO METRICS BY
EVALUATING THE FORMULAS

554

DISTILLATION PROGRAM STORES METRICS JUST
CALCULATED FOR TIME SEGMENT OF INTEREST IN A
MEMORY PORTION DEDICATED TO STORING METRICS
FOR THAT TIME SEGMENT

FIG. 16

Serial No.: 10/003,004   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.3D
Title: PROCESS TO BUILD AND USE USAGE BASED LICENSING SERVER DATA STRUCTURE FOR
            USAGE BASED LICENSING

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ROLLUP A ID 39

	MON	TUES	WED	...
M1= CPU	10	1	0	...
M2= DOCS	500	50	0	...
M3= #PGS	759	71	0	...

FIG. 17

ALTERNATIVE
ROLLUP B ID 40

MON	TUES	WED
0	3	2
0	70	40
0	139	96

FIG. 18

PREFERRED ROLLUP B ID 50

MON	TUES	WED
10	4	2
500	120	40
759	210	96

FIG. 19

ALTERNATIVE
ROLLUP B ID 40

MON	TUES	WED
0	4	2
0	120	40
0	210	96

FIG. 20

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FIG. 21

Serial No.: 10/003,004   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.3D
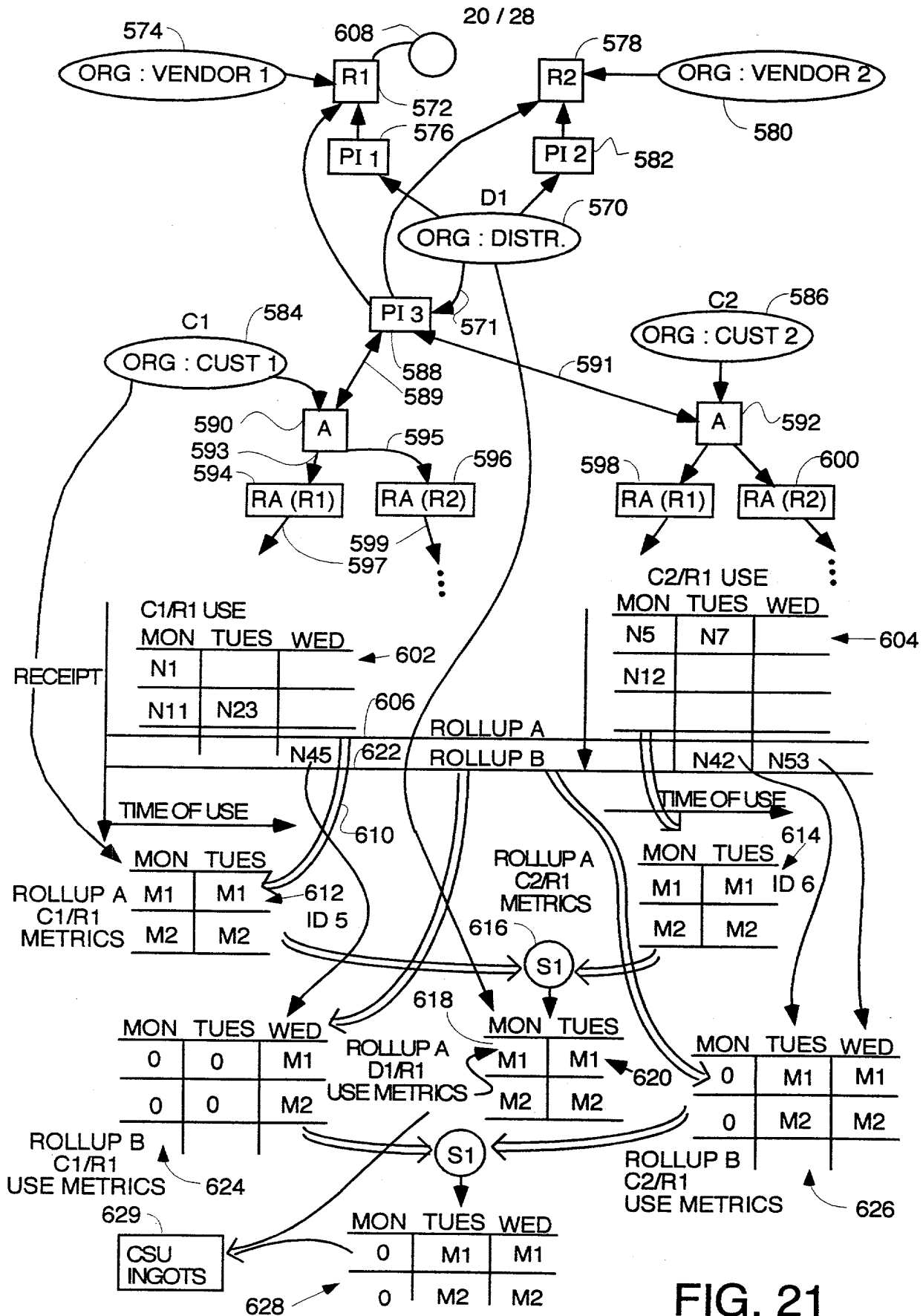Title: PROCESS TO BUILD AND USE USAGE BASED LICENSING SERVER DATA STRUCTURE FOR
          USAGE BASED LICENSING

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PROCESS FOR ONE PROTOCOL ACCESS TO USAGE/METRIC/CSU DATA
FOR ALL LICENSEES OF A LICENSOR FROM A USAGE MEASURING SERVER

640

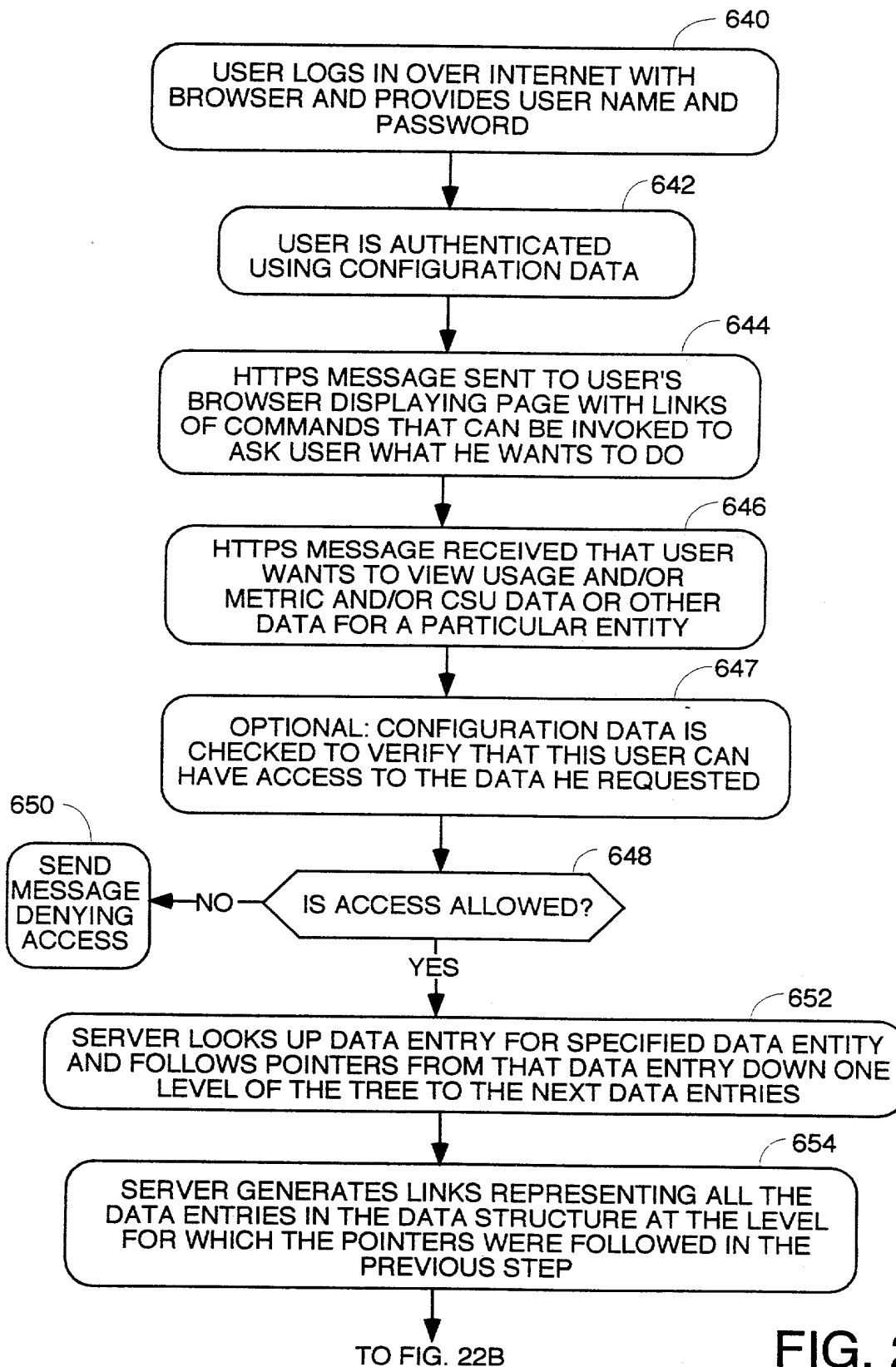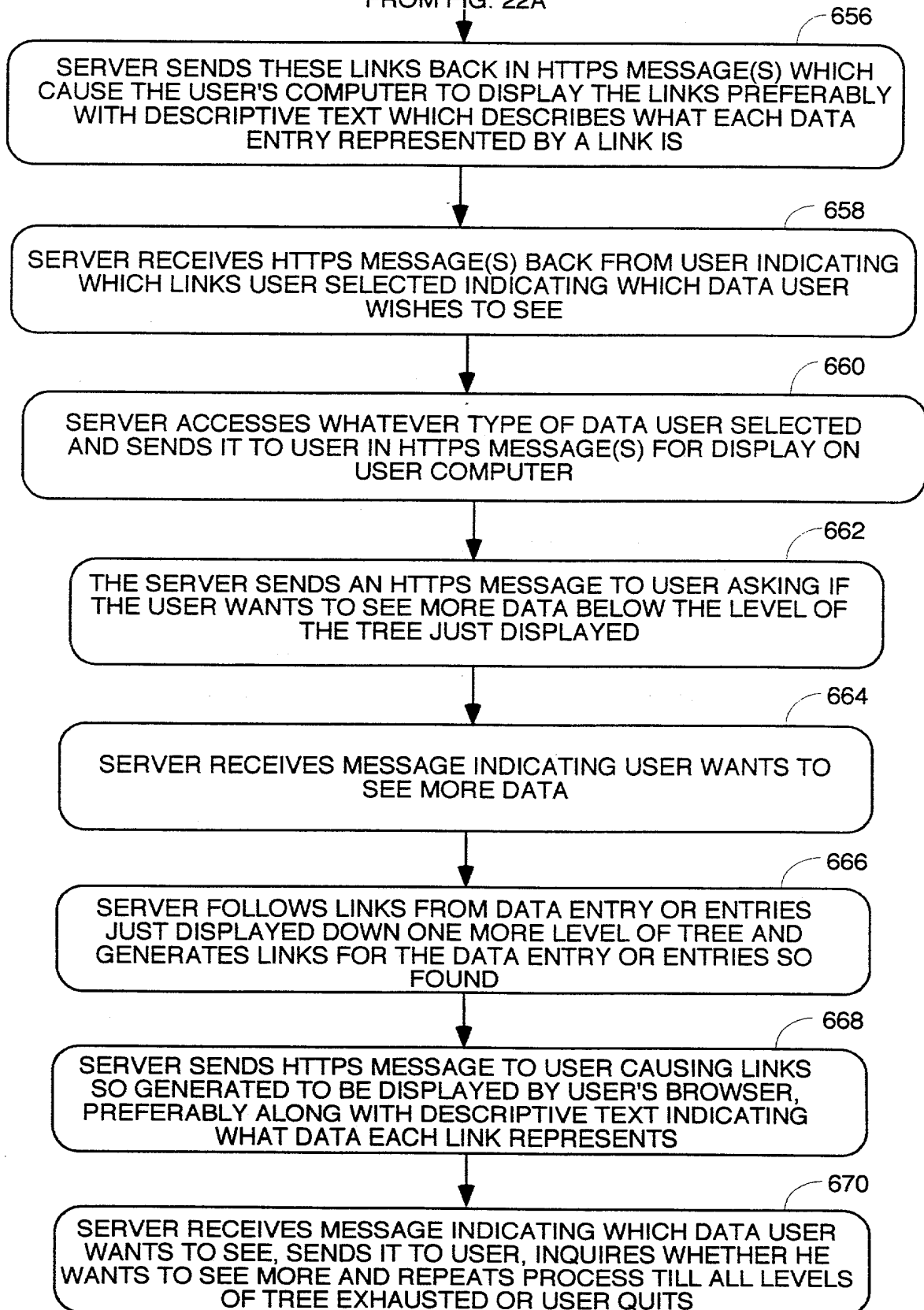USER LOGS IN OVER INTERNET WITH
BROWSER AND PROVIDES USER NAME AND
PASSWORD

642

USER IS AUTHENTICATED
USING CONFIGURATION DATA

644

HTTPS MESSAGE SENT TO USER'S
BROWSER DISPLAYING PAGE WITH LINKS
OF COMMANDS THAT CAN BE INVOKED TO
ASK USER WHAT HE WANTS TO DO

646

HTTPS MESSAGE RECEIVED THAT USER
WANTS TO VIEW USAGE AND/OR
METRIC AND/OR CSU DATA OR OTHER
DATA FOR A PARTICULAR ENTITY

647

OPTIONAL: CONFIGURATION DATA IS
CHECKED TO VERIFY THAT THIS USER CAN
HAVE ACCESS TO THE DATA HE REQUESTED

650

SEND
MESSAGE
DENYING
ACCESS

◄—NO—

648

IS ACCESS ALLOWED?

YES

652

SERVER LOOKS UP DATA ENTRY FOR SPECIFIED DATA ENTITY
AND FOLLOWS POINTERS FROM THAT DATA ENTRY DOWN ONE
LEVEL OF THE TREE TO THE NEXT DATA ENTRIES

654

SERVER GENERATES LINKS REPRESENTING ALL THE
DATA ENTRIES IN THE DATA STRUCTURE AT THE LEVEL
FOR WHICH THE POINTERS WERE FOLLOWED IN THE
PREVIOUS STEP

TO FIG. 22B

FIG. 22A

656

SERVER SENDS THESE LINKS BACK IN HTTPS MESSAGE(S) WHICH
CAUSE THE USER'S COMPUTER TO DISPLAY THE LINKS PREFERABLY
WITH DESCRIPTIVE TEXT WHICH DESCRIBES WHAT EACH DATA
ENTRY REPRESENTED BY A LINK IS

658

SERVER RECEIVES HTTPS MESSAGE(S) BACK FROM USER INDICATING
WHICH LINKS USER SELECTED INDICATING WHICH DATA USER
WISHES TO SEE

660

SERVER ACCESSES WHATEVER TYPE OF DATA USER SELECTED
AND SENDS IT TO USER IN HTTPS MESSAGE(S) FOR DISPLAY ON
USER COMPUTER

662

THE SERVER SENDS AN HTTPS MESSAGE TO USER ASKING IF
THE USER WANTS TO SEE MORE DATA BELOW THE LEVEL OF
THE TREE JUST DISPLAYED

664

SERVER RECEIVES MESSAGE INDICATING USER WANTS TO
SEE MORE DATA

666

SERVER FOLLOWS LINKS FROM DATA ENTRY OR ENTRIES
JUST DISPLAYED DOWN ONE MORE LEVEL OF TREE AND
GENERATES LINKS FOR THE DATA ENTRY OR ENTRIES SO
FOUND

668

SERVER SENDS HTTPS MESSAGE TO USER CAUSING LINKS
SO GENERATED TO BE DISPLAYED BY USER'S BROWSER,
PREFERABLY ALONG WITH DESCRIPTIVE TEXT INDICATING
WHAT DATA EACH LINK REPRESENTS

670

SERVER RECEIVES MESSAGE INDICATING WHICH DATA USER
WANTS TO SEE, SENDS IT TO USER, INQUIRES WHETHER HE
WANTS TO SEE MORE AND REPEATS PROCESS TILL ALL LEVELS
OF TREE EXHAUSTED OR USER QUITS

FIG. 22B

Serial No.: 10/003,004   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.3D
Title: PROCESS TO BUILD AND USE USAGE BASED LICENSING SERVER DATA STRUCTURE FOR
              USAGE BASED LICENSING

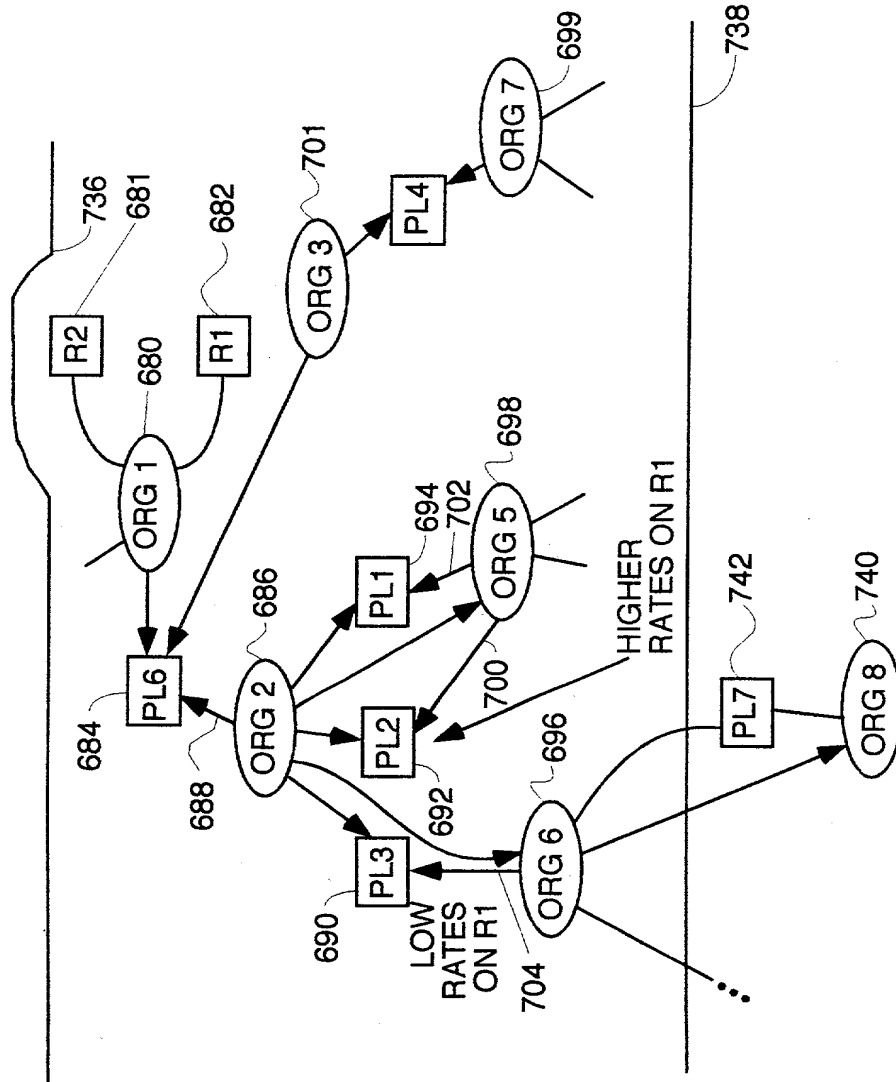23 / 28

SECURITY BARRIERS

FIG. 23

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A PROCESS TO IMPLEMENT SECURITY BARRIERS TO PREVENT USERS FROM
VIEWING DATA IN A USAGE MEASURING SERVER DATA STRUCTURE THAT THE
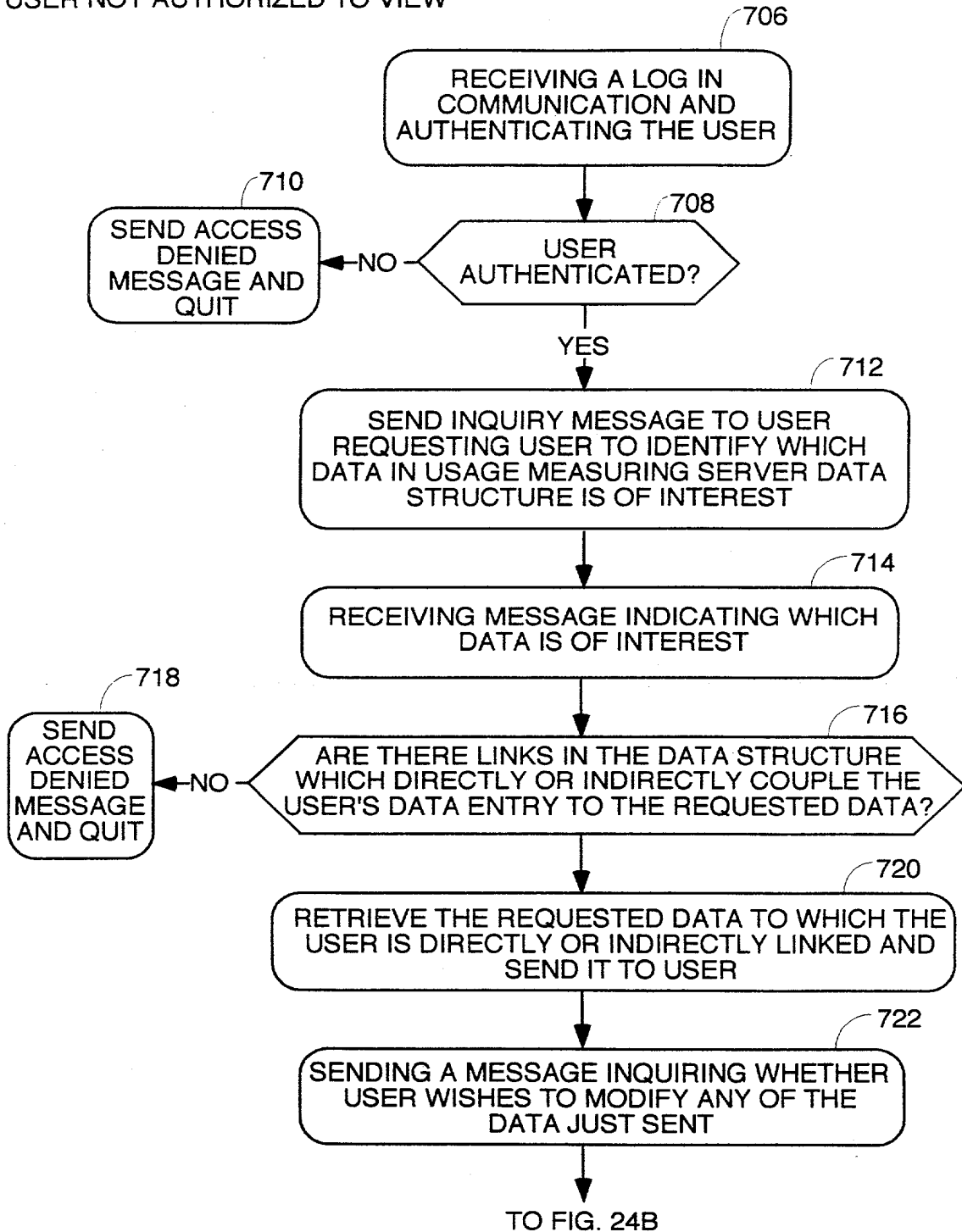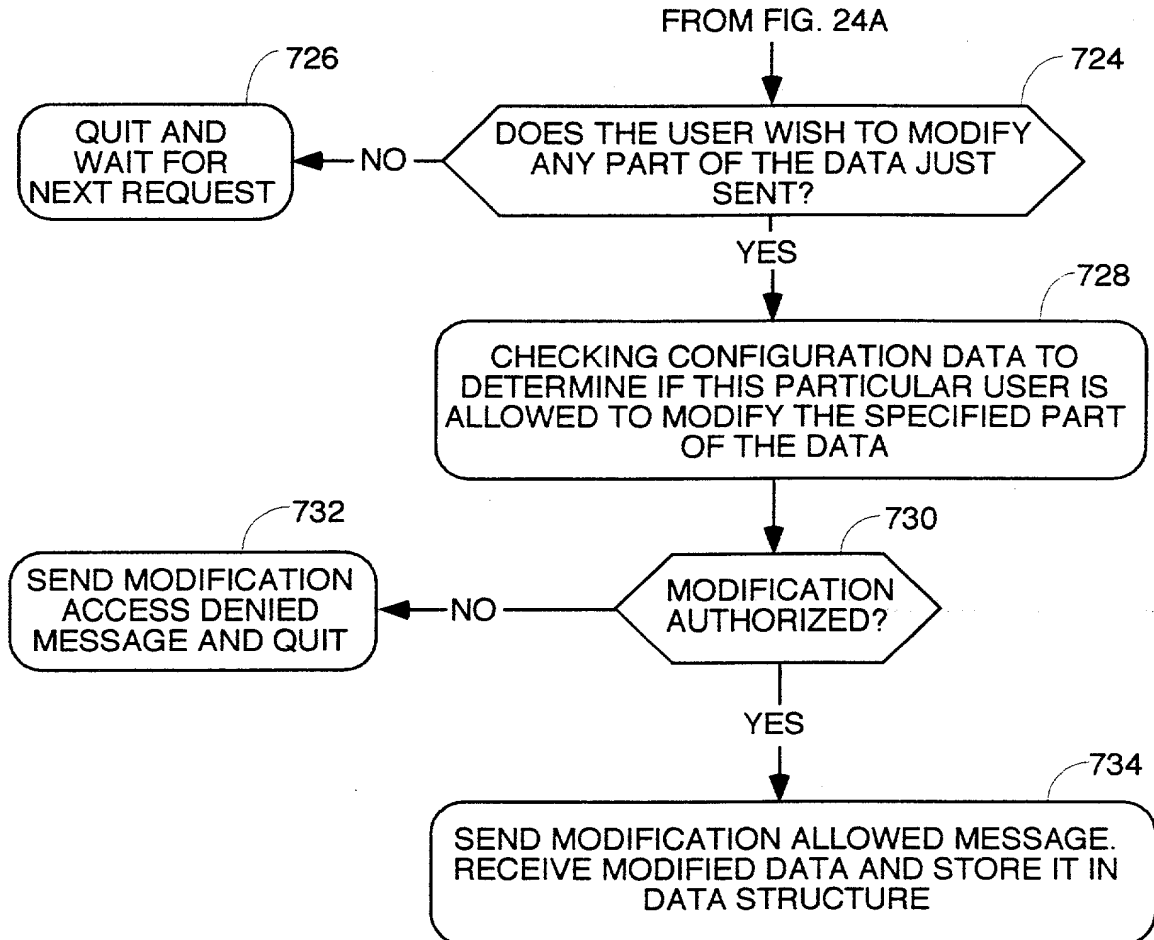USER NOT AUTHORIZED TO VIEW

706

RECEIVING A LOG IN
COMMUNICATION AND
AUTHENTICATING THE USER

710

SEND ACCESS
DENIED
MESSAGE AND
QUIT

708

←NO— USER
AUTHENTICATED?

YES

712

SEND INQUIRY MESSAGE TO USER
REQUESTING USER TO IDENTIFY WHICH
DATA IN USAGE MEASURING SERVER DATA
STRUCTURE IS OF INTEREST

714

RECEIVING MESSAGE INDICATING WHICH
DATA IS OF INTEREST

718

SEND
ACCESS
DENIED
MESSAGE
AND QUIT

716

←NO— ARE THERE LINKS IN THE DATA STRUCTURE
WHICH DIRECTLY OR INDIRECTLY COUPLE THE
USER'S DATA ENTRY TO THE REQUESTED DATA?

720

RETRIEVE THE REQUESTED DATA TO WHICH THE
USER IS DIRECTLY OR INDIRECTLY LINKED AND
SEND IT TO USER

722

SENDING A MESSAGE INQUIRING WHETHER
USER WISHES TO MODIFY ANY OF THE
DATA JUST SENT

TO FIG. 24B

FIG. 24A

FROM FIG. 24A

726

QUIT AND
WAIT FOR
NEXT REQUEST

←—NO—

724

DOES THE USER WISH TO MODIFY
ANY PART OF THE DATA JUST
SENT?

YES

728

CHECKING CONFIGURATION DATA TO
DETERMINE IF THIS PARTICULAR USER IS
ALLOWED TO MODIFY THE SPECIFIED PART
OF THE DATA

732

SEND MODIFICATION
ACCESS DENIED
MESSAGE AND QUIT

←—NO—

730

MODIFICATION
AUTHORIZED?

YES

734

SEND MODIFICATION ALLOWED MESSAGE.
RECEIVE MODIFIED DATA AND STORE IT IN
DATA STRUCTURE

FIG. 24B

Serial No.: 10/003,004   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.3D
Title: PROCESS TO BUILD AND USE USAGE BASED LICENSING SERVER DATA STRUCTURE FOR
          USAGE BASED LICENSING

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FIG. 25

FIG. 26

Serial No.: 10/003,004   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.3D
Title: PROCESS TO BUILD AND USE USAGE BASED LICENSING SERVER DATA STRUCTURE FOR
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TAXONOMY CATEGORIES

FIG. 27

'Serial No.: 10/003,004   Inventor: RAMACHANDRAN , et al.   Docket No.: COM-002.3D
Title: PROCESS TO BUILD AND USE USAGE BASED LICENSING SERVER DATA STRUCTURE FOR
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SERVER PROCESSINGTO IMPLEMENT ONE-STOP SHOPPING SEARCHING OF
THE DATA STRUCTURE BASED UPON USER-DEFINED CRITERIA

782

USER LOGS IN AND IS AUTHENTICATED
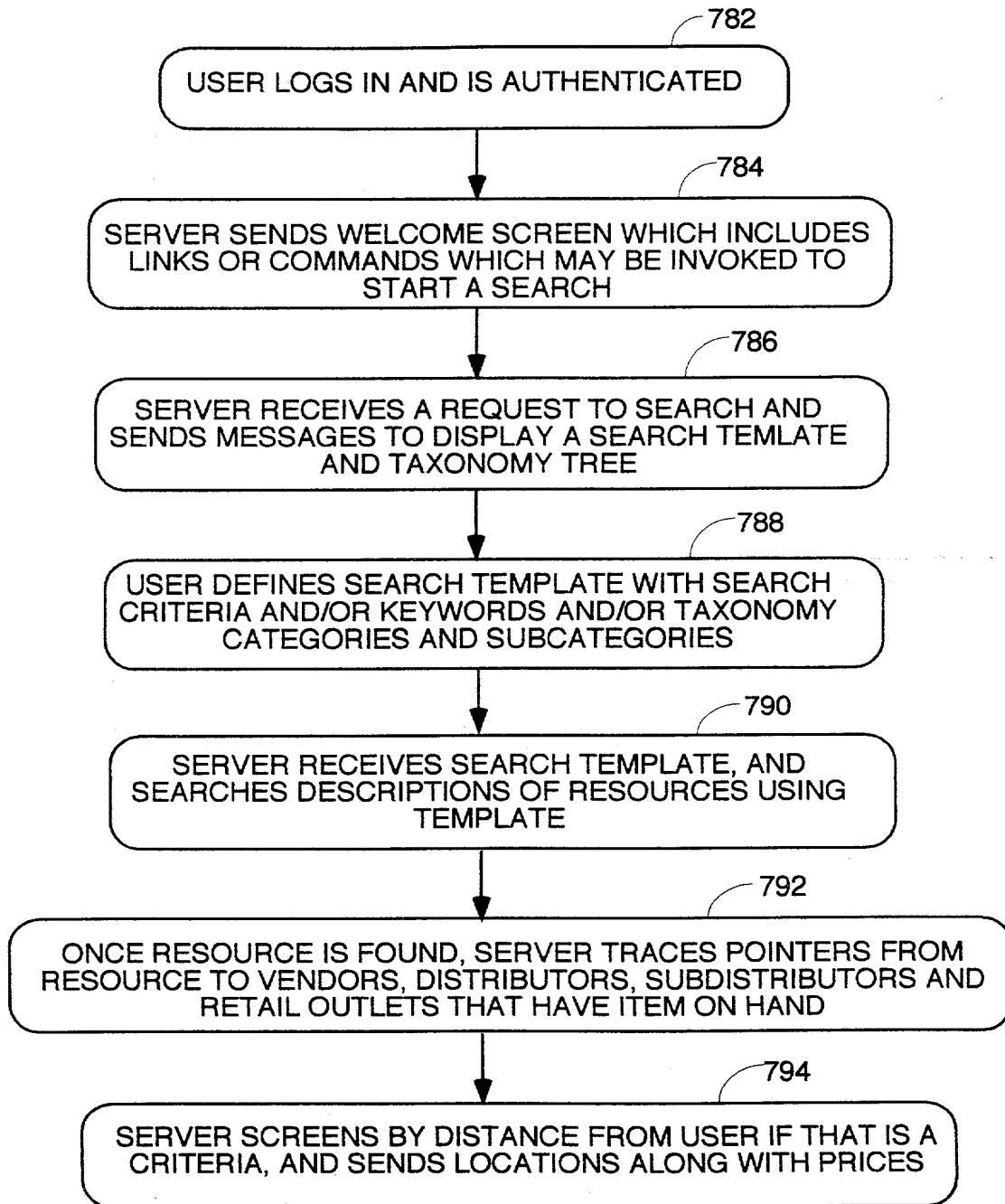
784

SERVER SENDS WELCOME SCREEN WHICH INCLUDES
LINKS OR COMMANDS WHICH MAY BE INVOKED TO
START A SEARCH

786

SERVER RECEIVES A REQUEST TO SEARCH AND
SENDS MESSAGES TO DISPLAY A SEARCH TEMLATE
AND TAXONOMY TREE

788

USER DEFINES SEARCH TEMPLATE WITH SEARCH
CRITERIA AND/OR KEYWORDS AND/OR TAXONOMY
CATEGORIES AND SUBCATEGORIES

790

SERVER RECEIVES SEARCH TEMPLATE, AND
SEARCHES DESCRIPTIONS OF RESOURCES USING
TEMPLATE

792

ONCE RESOURCE IS FOUND, SERVER TRACES POINTERS FROM
RESOURCE TO VENDORS, DISTRIBUTORS, SUBDISTRIBUTORS AND
RETAIL OUTLETS THAT HAVE ITEM ON HAND

794

SERVER SCREENS BY DISTANCE FROM USER IF THAT IS A
CRITERIA, AND SENDS LOCATIONS ALONG WITH PRICES

FIG.28